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EDITORIAL.

INOCULATION OF CONTAGION THROUGH MUCOUS MEMBRANES.—The study of contagious diseases inexhaustible—continuous increase in knowledge concerning them—rabies, with all its related controversies—the light is yet far from being perfect—Prof. Galtier's new investigations—the healthy mucous membranes are gates open for the entrance of virus—glanders an exception to it—Director Nocard's experiments—careful cleanliness will protect against it. REAPPEARANCE OF TUBERCULOSIS IN MAINE.—Dr. Bailey's previous work in ridding the State of it—vain expectations of permanent relief—a new outbreak in the old quarter—Massachusetts the breeding-bed of the new invasion—that State full of the disease—thirty-five to fifty per cent. of her cattle infected—our previous remarks on the subject—our statement at the Fifth International Veterinary Congress confirmed—the useless criticisms made on it—it is of Massachusetts as of many others in the Union. KOCH'S "CURE" FOR CONSUMPTION.—The great discovery creates admiration, enthusiasm and anxiety—patients pouring into Germany—the reticence of the profession—of the scientific and medical press—so far the name of the great German physician secures the reception of the statements advanced—interesting and important to all—specially to veterinarians—may Paratoloid prove what it promises.

INOCULATION OF CONTAGION THROUGH MUCOUS MEMBRANES.—The study of diseases in general, and especially of those of a contagious nature, is constantly forcing itself upon the attention of pathologists, and notwithstanding all the light that has been already shed upon the various points involved in the related topics connected with these affections, there seems to be no exhaustion of the material, but rather, some novelty constantly developing for further examination and new discussion. Almost weekly we have new forms, new phases, and new names of diseases—especially the last—

pressed upon our attention, and only a nimble student can keep up with the times, in this race of knowledge. Prominent among these is rabies, concerning which so many theories have been suggested and abandoned, and so much unjustifiable criticism indulged in, that it would almost seem that nothing more could be invented or imagined to put in print touching upon the etiology of the affection. And yet the light is far from being perfect, and many obscure questions still remain to be solved.

Among the more attentive of the observers and students of rabies may be mentioned Professor Galtier, who has industriously worked the field. One of the results which have rewarded his investigations is the alleged possibility of inoculation of rabies through the medium of healthy mucous membrane. The professor has successively experimented touching the virulent action upon the digestive, respiratory, ocular and genito-urinary membranes, and he has proved that the disease can be transmitted, within various periods of time, at least in some cases, if not in all, through the mucous membranes, with perhaps an exception in favor of that of the genito-urinary canal.

In a pathological point of view these results are of great importance, and may serve to illustrate the etiology of a case in which the mode of introduction of the virus, followed by the appearance of all the symptoms, might not be known. But the possibility of this mode of inoculation does not seem to be established as good for all diseases, nor for all the mucous coverings, a fact well illustrated by the results obtained by Director Nocard in his experiments with the virus of glanders when brought in contact with the intact skin. Director Babes of Bucharest has already written on this subject, and the experiments of the learned Director of the Alfort School were made with a view to confirm if possible, those published by Dr. Babes. The results obtained served evidently to prove at least one important fact, viz., that it is a very unusual occurrence for the inoculation to take place through a skin perfectly intact. He inoculated three donkeys and fifteen guinea pigs with rabies cultures, and of all these only two of the pigs died with glanderous lesions.

These results are very reassuring for such veterinarians as are liable to be brought into frequent contact with glanders, showing conclusively as they do, that the simplest measures of cleanliness are perfectly sufficient to protect those whose skin may have become soiled with a glanderous discharge.

REAPPEARANCE OF TUBERCULOSIS IN MAINE.—The State of Maine has suffered largely from the prevalence of tuberculosis amongst her cattle, and it is but a few years since that Dr. Bailey, the veterinarian of the State Cattle Commission, condemned a large number of cows as suffering from the disease, and condemned the entire herd to destruction. It was then hoped and expected that by careful watching it would be possible to escape further loss and damage from the disease, but the necessary vigilance, and the wise suggestions of the doctor were not sufficiently heeded, and with the introduction of a new supply of cows, together with that of seven cattle bought in *Massachusetts*, the disease has reappeared, and once again the State may be made to suffer from the widely diffused malady.

In procuring them from Massachusetts, they were procured from a State which, according to the Doctor, is "full of the disease;" infested to such an extent, indeed, that he "believes that from thirty-five to fifty per cent. of her cattle population are infected."

The large experience with tuberculosis acquired by Doctor Bailey renders this estimate every way reliable, and strongly corroborates our own opinion, already repeatedly expressed on other occasions in columns of the REVIEW. Our statements have been attacked by persons who have had but scant opportunities for the substantiation of their criticisms, and as a partial answer to their strictures, we again refer these friends to the words of the State Veterinarian of Maine, which we have just quoted. No doubt we could obtain more and additional support for our views, if we felt inclined to inquire, not only from almost every State in the Union, but even from Massachusetts itself, from whence came the undeserved criticism of our statement to the Fifth International Veterinary

Congress. We stated then that it was not an uncommon thing to find herds in which tuberculosis was present to the extent of fifty per cent. Dr. Bailey states that in Massachusetts, "The cattle are filled with tuberculosis," and he believes "that from thirty-five to fifty per cent. of the cattle in that State are infected."

KOCH'S "CURE" FOR CONSUMPTION.—The articles upon the latest discovery of Prof. Koch which are published from day to day in the German papers, and transmitted to America by telegraphic despatches, are giving rise to a great deal of admiration and enthusiasm, as well as anxiety, among scientific and medical men; and while nothing very positive is as yet known concerning the new discovery of the learned German, every one is anxiously and attentively watching for the description of the details of the method which is announced, and for the results which may follow the treatment to which many sufferers from tuberculosis are now being subjected. From every part of the world patients are pouring into the German laboratory, ready to receive the treatment which has, it is reported, already given satisfaction and appears to have received the full sanction and approbation of the many scientific and medical men who apply it.

Many of the medical journals and physicians are, however, careful in expressing their opinion on the great promises that the new treatment seems to make, and if it were not for the high esteem in which Prof. Koch has always been held, because of the integrity of his purposes, the honesty of his labors, and the care which he has always exercised in all his investigations—in other words, if it was not the great German physician who presented the new treatment, it is very probable that the announcement would not have had the reception which it is now receiving. To the public at large, for the physician, for all, in fact, the new treatment as now indicated will be welcome, and the name of its discoverer will deservingly pass to posterity as having made one of the greatest, if not the greatest discovery of this century. And yet there is one point which we think, as veterinarians, deserves careful consideration, viz., the application of Koch's

treatment to the relief of the many animals which are suffering with the disease, and which by it from valuable are metamorphosed into dangerous animals, and which in so many instances prove one of the most common means of transmitting the disease. Let us all hope that the subcutaneous injections of " Paratoloid " will prove as applicable and beneficial in the lower class of phthisic patients as it is promised it will prove in the higher class, the human family.

ORIGINAL ARTICLES.

PARTURIENT ECLAMPSIA IN THE MARE.

By W. L. Williams, V.S., Bloomington, Ill.

(A paper read before the Illinois Veterinary Medical Association.)

It seems somewhat strange to the comparative pathologist that in all the larger domestic animals, save the mare (and in woman), there should occur a well-marked group of convulsive diseases having an intimate relation to the parturient state.

In the mare no such disease is described, so far as I have been able to determine, unless we except the bare hint of Fleming (Fleming's Veterinary Obstetrics, p. 660), who, in speaking of parturient apoplexy of the cow, says; " It is worthy of notice that the first stage of parturient fever—viz., the stage marked by congestion of the brain—is observed in the mare. It soon terminates in death, as is also sometimes the case with the cow, as a result of apoplexy. Such cases, though not sufficiently substantiated by the result of autopsies, have been described by Gerard (Veterinarian, 1874). The mares in question died during parturition, or soon after."

As will appear later, Gerard's cases were evidently essentially different from those I propose to describe as eclampsia.

The only mention I find of what appears to be the same disease as that under consideration is a brief sketch by Professor Williams in his Principles and Practice of Veterinary Medicine, under the name of hysteria.

My views of this disease are based almost wholly upon

my personal experience, and although some of my cases occurred about eight years since, most of them are of recent date.

My first cases were widely separated, and my observations extending over only a very brief part of the full course of the disease, only a small part of the entire train of phenomena of the malady were noted, so that I failed to connect the individual cases as all belonging to one group, depending upon one cause. Regarding them as isolated cases, which might never recur, and being wholly at sea as to a proper diagnosis, notes were not taken, and so I must trust to memory for what I wish to say.

More recently a hurried succession of cases presented themselves so forcibly and distinctively that some solution for their existence was demanded, but before any definite line of thought had been acquired, my cases were all gone, and what might have been a very interesting field for careful study had vanished.

Awaiting the return of such favorable opportunity for a more complete study, I shall venture to lay before you such observations and conclusions as circumstances warrant, trusting thereby to awaken an interest in this undescribed malady and lead some of you to make and record more definite and valuable deductions regarding it.

My first case occurred some eight years ago, in an adult grade draft mare, which had at her side a healthy, vigorous foal, some ten to twenty days old. The mare had foaled naturally and easily at the ordinary time, and the very apparent vigor of the foal showed clearly that she had been furnishing an abundant supply of milk. The owner reported that a few hours prior to my arrival the mare suddenly became strangely nervous, assuming a wild look, with staring eyes, restlessness, stiffness of gait, twitching of the muscles, occasionally lying down and getting up, the symptoms all rapidly increasing, until she lay prostrate on her side, unable to rise. In this position I found her, the whole muscular system exceedingly rigid, breathing labored, convulsions constant, pupils greatly dilated, mucous membranes livid, firm trismus,

and the muscles of her limbs so rigid that they could not be flexed sufficiently to raise her upon her chest. She succumbed a few hours later, and no autopsy was made, the case being attributed to some occult cerebral affection due to the parturient state.

The second case I am able to recall occurred some two years later, the subject being a high grade draft mare, used exclusively for breeding purposes, and aged about five or six years.

The mare was quite large, very robust in appearance, had foaled five to ten days previously without difficulty, and the foal at her side was very vigorous and well nourished.

I found the mare lying apparently quiet on her sternum, showing no evidence of suffering, and looking quite bright and healthy.

Upon approaching her, however, she showed marked nervousness, and at once tried to get up, but appeared to have lost the power of co-ordination; was quite weak, and her efforts brought on clonic spasms of a severe character, her hind legs knuckling at the pasterns, much as in azoturia.

During my stay she became more nervous and uneasy, making repeated unsuccessful attempts to rise; respirations rapid and laborious, constant and severe cramps of the entire body, tremblings and profuse perspiration, all of which appeared to decrease in intensity when we would withdraw and permit her to become more tranquil.

The passage of the catheter increased the convulsions quite markedly, there apparently being hyperæsthesia of the vulva, probably of the body generally.

I diagnosed azoturia, and prognosticated a favorable termination. Later observations have shown me that mares with young foals do not, or rather can not, contract azoturia; besides, the fact that the mare had been running at grass constantly, precluded the possibility of that disease. I might point out further differences, but these two essential facts in the history of the case are sufficient to show that I erred in my diagnosis, and the early death of the animal showed an equal error in prognosis.

I recall no more distinct cases until the summer of 1889, when an unusual number occurred in rapid succession and showing every degree of intensity.

At this date our rapidly developing horse breeding interest had about reached its maximum in my locality, so that large numbers of mares were kept solely for breeding purposes, and favorable weather furnished exceedingly luxuriant pasturage, the grasses being unnaturally watery.

During the season of 1889 I now recall seven well marked cases, several of which offered favorable opportunities for observation throughout a greater part of their course.

One, a well-bred road mare, in high condition, with a vigorous, well-nourished foal, some eight to ten days old, at her side, was brought from the pasture preparatory to being bred. Soon after her arrival at the owner's stable the mare was noticed to be restless, nervous, the eyes somewhat staring, and occasional muscular twitchings. Most noticeable of all was a peculiar, very well-marked throbbing of the chest, which shook the entire body. It seemed like an exaggerated heart-beat, and was quite regular in time and force, but was not rhythmical with the heart-beat. The disturbance seemed greatest along the line of attachment of the diaphragm to the ribs, and the phenomena could be attributed to no other cause than clonic spasm of the diaphragm. There was some trismus present, but not sufficient to prevent eating with relish and comparative ease.

With quietude and moderate doses of belladonna and cannabis indica, she made a good recovery in a few hours.

In another case I was called to attend a half-blood draft mare, aged five to seven years, in prime condition and perfect health prior to the date of my visit. She had foaled five to ten days before without trouble, and the foal was vigorous and well nourished. She was then brought from the pasture for the first time and placed in the stable, and within a few hours symptoms of disease were manifested.

I found the animal in great pain, very nervous, and easily disturbed by any movements or noise. She lay down quite frequently, and while lying became more tranquil, all the

symptoms abating. While down the animal lay on the sternum, and did not attempt to roll; in rising she did so with apparent ease. While standing there was constant clonic twitchings of the muscles of the entire body, spasmodic movements of the limbs, frequent changes in posture, trembling, profuse sweating, the nostrils widely distended, the movements stiff, as in tetanus. There was no protrusion of the membrana nictitans over the eyeballs, but the eyes were staring and pupils dilated, and the conjunctivæ were dark livid in color. There was severe trismus, the jaws being wholly immovable, and as in the preceding case there was violent spasm of the diaphragm. She was bled freely from the jugular, and given large and repeated doses of belladonna and cannabis indica. For about thirty-six hours the symptoms remained about the same, when they began to abate rapidly, and in 48 to 60 hours after the beginning of the attack the mare was in her usual health.

On the same day, on a neighboring farm, I attended another grade draft mare with a similar history of recent easy parturition, healthy foal at side, etc., and which prior to my arrival had shown a similar train of symptoms to those noted above; but the owner delayed calling me, so that upon my arrival I found the animal prostrate on her side, the whole muscular system thoroughly tetanized, the eyes set and insensible to light, firm trismus, well-marked opisthotomos, repeated severe convulsions of the entire body, readily increased or caused by any sudden noise

Barring the want of protrusion of the membrana nictitans and the greater nervousness, the case closely simulated a recumbent case of tetanus. The animal succumbed after about twenty-four hours.

In another case I was called to attend, a full blood draft foal, some five or six days old, was suffering from lameness, and in order that it might be well attended the mare was brought from the pasture and placed in the stable. The next morning I was hurriedly called to attend the mare, which I had seen the previous day in apparently perfect health and unusually robust and vigorous. Upon my arrival at the farm

I found the mare greatly agitated, the whole body tetanized, with constant clonic twitchings, spasmodic movements of the limbs, hurried, labored respirations, nostrils widely dilated, visible mucous membranes of a dark livid hue, firm trismus, and profuse sweating. When on her feet she could not stand still, but continually moved about involuntarily and so very uncertainly that she could scarcely be approached with safety. The perspiration was so profuse that it streamed from the dependent parts of her body, the nose was poked out, the head elevated, the back arched, the tail erected, giving the entire body the posture assumed in severe tetanus, but the well-marked protrusion of the membrana nictitans seen in the latter disease was wanting. The animal would lie down frequently, and usually on the sternum, in which position she became more tranquil and apparently obtained some relief; at other times she lay prostrate on her side, in severe convulsions, the legs all rigid, so that the upper feet did not touch the ground, but projected in a straight line from the body. The spasm of diaphragm was so violent in this case that even when the mare was lying on her sternum her whole body shook very markedly at each contraction, and when standing fifteen or twenty feet distant a loud thumping noise could be heard, emanating from the chest, like violent palpitation of the heart, but upon close examination it was found that it bore no relation to the heart-beat.

With great difficulty, owing to the uncertain convulsive movements of the animal, I drew about three gallons of blood from the jugular. This was followed by heavy and repeated doses of fluid extract belladonna and cannabis indica, about 1½ drachms of each every hour.

My prognosis was very unfavorable, as death seemed imminent. After twelve to fifteen hours the symptoms rapidly abated, and within twenty-four hours after my visit she was apparently in her usual health.

In another case—the last to come under my observation—a high grade draft mare of vigorous constitution, and with a well nourished, healthy foal, some fifteen to twenty days old, at her side, was taken from the pasture for the first time since

foaling and put to light farm work, and in a few hours she had developed all the symptoms enumerated in the preceding cases, and when I arrived she was unable to regain her feet, rapidly growing worse and dying the same day, within twelve hours from the time she was brought from the pasture in prime condition, and only five to eight hours after the beginning of the attack. My other cases were similar, and need not be detailed here.

How common this affection may be in the experience of others I have not learned. Messrs. Ullrich, V.S., of Decatur, and Stringer, V.S., of Danbury, have each related to me one case of what appears to have been the same. A gentleman recently related another case to me which must have been of the same character.

The subject was a little imported pony mare in high condition, with a well nourished foal at her side, about six to eight weeks old. Some children came to visit the owner's little girl, and the pony was brought in from the pasture for the first time since foaling, a saddle put on her and then placed in the hands of the children, who used her for a few hours in the morning, and on being brought in at noon the stableman found some difficulty in removing the bit from her mouth.

This attracted no particular attention, but when the owner attempted to bridle her again after dinner and failed on account of the firm trismus, it was evident to them that something was wrong. A veterinarian was at hand in a few hours, but the pony rapidly developed all the symptoms enumerated above. She was bled from one jugular on the first, and the other on the second day. Other treatment was carried out, but its exact nature is unknown to me. In about forty hours after the beginning of the attack the symptoms suddenly abated, and within forty-eight hours from the beginning the pony was apparently as well as ever.

This case was, I was informed, diagnosed as tetanus, but, like my diagnoses in several cases, it was certainly incorrect. True, in the literal meaning of the word it was tetanus, but it was not the affection we ordinarily know by that name in human and veterinary practice.

We have here a series of cases presenting varied symptoms, as we would expect to find in different animals, at different stages of development of the disease, yet passing from one into the other by an imperceptible scale, all evidently due to the same cause.

In the earlier stages and in the very mild cases throughout, all showed the restlessness, the staring, pouiretting eyes, the muscular twitchings, the clonic spasms, especially marked in the diaphragm. In proportion to the nervousness, the pulse and temperature suffered little. If unchecked, the clonic spasms were largely succeeded by those of a more tonic nature, trismus became a marked symptom, the restlessness and convulsions increased in intensity, the respiration became more labored, the mucous membranes livid from partial asphyxia, the whole muscular system becomes tetanized to its fullest extent, the animal is no longer able to stand nor to find relief in lying on the sternum, but lies prostrate on the side in constant convulsions until it succumbs, probably from asphyxia.

Their histories, too, are quite uniform. All were robust, vigorous mares, in high condition, of mature age, but not old; all had recently foaled naturally and easily, and had healthy, well nourished foals at their sides, showing that the mammary glands were well developed and active in all cases.

In nearly if not all the cases I have related, the mares had been enjoying unrestricted freedom at pasture constantly since foaling, and then taken up a few hours prior to the attack, which was suddenly ushered in without warning.

Professor Williams (Prin. and Prac. Vet. Med., p. 726), under the name of "Hysteria," describes what seems to have been the same affection, in the following words: "Concurrent with the period of œstrum in the female, the following symptoms, viz., clenching of the jaws, grinding the teeth, difficulty of swallowing, some degree of trismus, squinting of the eyes, tonic spasms alternating with those of a clonic kind, continual kicking, in an irregular, uncontrolled manner, with one or both hind feet; stamping of the fore feet, and other nervous excitement, have been observed in the mare and female ass.

"In one case that I saw, the two fore shoes and one hind shoe had been thrown off by the violent kicking and stamping. Attempts were made to remove the remaining one, which was loose; they were, however, unavailable, as the slightest touch caused the most violent kicking. The animal would fall, the whole trunk and neck being perfectly rigid, whilst the limbs continually moved in a violent and spasmodic manner. The power of volition seemed to be completely lost. The gluteal muscles were exceedingly hard and prominent. The rapid opening and closing of the vulva and its highly injected mucous membrane indicated the hyperæsthesia of the genital organs. Urine was passed abundantly, at first pale and watery, but afterwards highly colored, and loaded with solid matters.

"In another case the symptoms were rather different. The animal was prostrate, rigid, with the eyes turned upwards, as if in a trance. They were both bled, and an endeavor was made to nauseate them with aloes, and to allay the nervous irritability with opium. One recovered, the other died. For the prevention of this condition I can only suggest that the sexual desire be gratified, if possible, whenever such a state of excitement short of the above presents itself."

Prof. Williams fails to inform us if his cases had foals at their sides and had passed through the same conditions as those I have observed. I do not recall the appearance of œstrum in any of my cases, which he relates in his; surely it was not marked in any of them, or I should have noted it.

How he manages to call the affection hysteria without drawing heavily upon his imagination, is more than I can comprehend. The principal factors in the causation of so-called hysteria in women, such as "sudden fright or horror, powerful religious impressions, disappointed love or hope deferred, grief, jealousy and the like, unhappy marriage, etc.," rarely if ever enters as an essential factor in the etiology of this disease in mares.

A careful study of the causation, history, symptoms, course and termination of hysteria in women fails to afford the slightest resemblance or parallelism in any respect with

this affection of mares; and when Prof. Williams in the above quoted chapter advises early and abundant sexual intercourse as a prophylactic or remedial measure in this "hysteria" of mares, he certainly assumes a position that is open to severe criticism.

If the gratification of sexual desires constituted a reliable remedial agent for the cure of hysteria, there would certainly be less of it in the human family, and few cases would run so chronic and protracted a course.

Barnes (System. Obstetric Med. and Surg., p. 283), probably defines hysteria well when he says: "It is not too much to say that hysteria is an *asylum ignorantiæ* which will one day be closed." I have been unable to find a place for this term in veterinary medicine.

The cases I have related go far to show that the disease is one following closely upon parturition, that it happens in animals in prime condition, which have foaled easily; the foals have lived and were quite vigorous, forcing us to the conclusion that the mares were heavy milkers.

It also happens at a time in the mare's history when the blood has a recognized increase of water over the ordinary state, and my cases happened at a season when the grasses were very luxuriant and "washy," owing to heavy rains, thus augmenting the quantitative plethora-hydræmia.

It seems that a sudden change of surroundings, a change from freedom to the stable or harness, probably by causing maternal anxiety for the foal, has an essential influence in the immediate causation of the disease.

The symptoms indicate a grave disturbance of the central nervous system, expressed for the most part in convulsions and spasms of the striated muscles, and I have consequently chosen to place it along with other parturient convulsive diseases, under the name of "eclampsia."

Comparing the disease of mares with the parturient eclampsia of woman, we find as close parallelism as can reasonably be expected. While the majority of cases of parturient convulsions in women appear prior to or during labor, it is true that *all* the cases of this affection in mares which I

have been able to collect occurred *after* parturition; but it is equally true of the convulsive affections dependent on parturition in the other lower animals. The parturient apoplexy of the cow, and the parturient eclampsia of the cow, bitch, goat and sow, as described by Fleming and other writers, occur almost, if not wholly, after parturition.

Fleming, in his "Text Book of Veterinary Obstetrics," disagrees with Franck, who, in his "Geburtschilfe," attempts to establish the identity of the parturient convulsions of woman with parturient apoplexy of the cow; and while the former is forced to admit that Franck occupies a somewhat tenable position, he remarks that "the eclampsia (of woman) is essentially epileptic or convulsive, the convulsions being of a tonic and clonic nature; and though, in the disease of the cow, convulsions are sometimes present, yet they are far from being a constant symptom." Fleming differs widely here from my personal observations with parturient apoplexy of cows, for while admitting coma as the most impressive phenomenon, I have rarely seen cases in which, at some stage, well defined convulsions were not present, and in the earlier stages we have quite uniformly found strong resemblance between the symptoms of apoplexy in the cow and those which are said to occur in the puerperal convulsions of woman.

After opposing as strongly as possible the ideas of Franck as to the identity of these two affections, Fleming remarks:

"But if we cannot at present admit that this bovine disorder (parturient apoplexy) and eclampsia of woman are the same, there is a malady which attacks not only the cow, but also the goat, bitch and sow, and which certainly closely resembles the human disease."

Under this head, then, of parturient eclampsia, Fleming proceeds to describe a convulsive parturient affection of the goat, bitch and sow, which certainly closely resembles in history, semiology, course and termination, the disease of woman, and along with them he describes a convulsive affection of cows equally resembling the human affection. This eclampsia of cows it has been my fortune to observe several times, and some of my cases, after a few hours, developed

into typical cases of parturient apoplexy, while others ran a mild course, without coma, to a favorable termination. In fact, the parturient eclampsia of cows, as described by Fleming, passes by insensible gradations into parturient apoplexy, so that so far as we can determine by clinical observation, the non-febrile, post-parturient convulsive and comatose affections of the various lower animals belong in one group and are dependent upon one cause.

That these affections in different species, or in animals of a different temperament or under different conditions in the same species, should present variations in symptoms in the relative nervous irritability or coma, is perfectly natural.

We note a close correspondence in the character of the patients affected by parturient convulsions, all being those of apparent vigorous constitution, and in those occurring after parturition the labor has been easy.

The symptoms we have enumerated as occurring in the mare bear a close resemblance to the eclampsia of other lower animals, and of woman, as well as to the early stages of parturient apoplexy of the cow.

Like eclampsia in the other lower animals, and in woman, the disease in the mare is ushered in suddenly, runs a rapid course of twenty-four to forty-eight hours, and terminates as abruptly as it began, rarely in partial, usually in complete recovery, or in death.

The diagnosis should apparently be quite easy in all cases. The history of the case so far as observed seems of special value. The clonic and tonic spasms, the extreme trismus and the peculiar spasm of the diaphragm, are quite characteristic. It may be confounded with:

(*a*). Tetanus, from which it is distinguished by the sudden onset, the earlier and more complete trismus, the greater nervous irritability and greater tendency to clonic spasms, the greater tendency to lie down, the dilatation of the pupil and pouiretting of the eyes, the much less marked protrusion of the membrana nictitans over the eyeball, the absence of any antecedent wound, the far more rapid course and usually more favorable termination.

(*b*). Cerebro-spinal meningitis, from which it is to be separated by its history, its more sudden onset, its cramp unaccompanied by paralysis, its well marked trismus, rapid course and more favorable termination.

(*c*.) Azoturia, from which it differs essentially in attacking animals not subject to that affection—that is, mares enjoying unrestrained liberty and having young foals. Aside from the fact that azoturia cannot be induced in such animals, the spasms are more general over the entire body, the trismus is characteristic, and the urine neither so abundant nor highly colored.

The treatment should evidently consist first of quietude and comfort. The foal should be allowed with the mare. In my cases free blood-letting apparently alleviated the symptoms, if resorted to early.

Fluid extracts of belladonna and cannabis indica in large and repeated doses apparently allayed the excitability and exerted a favorable influence upon the course of the disease.

INFECTIOUS ABORTION.

By J. F. Reid, V.S., Decatur, Ill,

(A Paper read before the Illinois Veterinary Medical Association).

The alarming prevalence of abortion throughout the country generally during the past few years, and especially the past year, entailing great loss on the horse-breeders of the country, surely requires close attention from the veterinary profession, and thorough experimental investigations should be made to discover the cause, and if possible some preventive for this terrible scourge.

Outbreaks of abortion in an epizootic form have been known and recorded from the earliest times, and although all agree as to their destructiveness, in this country there have been no thorough investigations made as to the cause or the amount of damage inflicted each year. Now the loss in certain localities is very great, and I am confident that it is not an over-estimate for me to give as the loss suffered in the dis-

trict where I practiced during the past year, as fully forty per cent. of the mares impregnated. Although such a loss of the foals, with the keep of the mares and the service fee of the sire, is very great, yet in many instances it is not all, as the mare occasionally is lost or fails to conceive the following season, and in some cases for several seasons after.

In Europe, Fleming asserts "that the chief loss occurs with cattle, and very little with mares," but in my experience I have known comparatively little loss with cattle except in sporadic cases. This possibly may be accounted for by the difference in keep in the two countries.

In attempting to discover the cause of infectious abortion, men are baffled by the obscurity which attends its development and the different opinions offered by those giving it any attention. Some authorities adduce that outbreaks start from a sporadic case, whether accidental or otherwise, and that a nervous impression is made on the mare or mares in close proximity to the affected one, and thus conveyed from one to the other until all or nearly all have aborted. Regarding general causes, Fleming says that the disease is most frequent during wet seasons when it is probably due to anæmia, as well as to forage damaged by moisture, ergotised or otherwise altered. Manure scattered over the pastures and decomposing has also been offered as a cause. The local conditions to which animals are subjected cannot be adduced as the cause, as animals abort under every kind of regimen, in all conditions and irrespective of age or breed.

The assertion that an accidental abortion occurring among a number of pregnant mares is competent to develop the infectious germ that inoculates other animals, and causes general abortion, I certainly think is unfounded. Of course an outbreak may first show itself in a mare that has been injured, as the injury might facilitate the action of the infectious germ, but I do not think that any injury is necessary for the production of the disease. I have frequently observed that where a mare running or having been kept with other pregnant mares has received a known injury and aborted, or has been a regular aborter at a certain stage of pregnancy, and

even when the fœtus and membranes have not been removed for some time, I have never known where such an abortion has been followed by a general abortion of the mares that were in connection with the one affected.

In many instances when the first mare aborts, you will be informed by the owner or attendant that he believes she has received some injury, but such information is founded on about as much knowledge as that which the average man possesses who asserts that the animal affected with periodic ophthalmia has been struck by an attendant in the eye.

The weather, wet or dry, warm or cold, appears to make no difference in this country, as the disease becomes epizootic during seasons of different temperature, appearing in some localities during a very cold, dry winter and in others just the opposite.

For a great many years the best authorities have believed that infection has played the sole part, and I do not think there will be much question here as to that, but from what does the infection spring? Is it necessary that an accidental abortion take place, and from the decomposition accompanying it the infectious germ is developed which is conveyed to others with such disastrous results? or is the germ developed independently and under certain favorable conditions attacking the fœtal membranes, causing decomposition and subsequent abortion? I do not believe that the first proposition is correct, but I am inclined from my own observations to believe that the latter is. Probably it is true that the infection becomes greater after redevelopment in the fœtal membranes. Fleming states that mares that have carried their fœtus nearly through the normal period of gestation, resist the infection and foal all right at the natural time. My experience has been that the period of gestation makes no difference, as mares lose their colts after having gone ten months and even longer. In such cases it is not uncommon to have a malpresentation with difficult parturition. The period of incubation is doubtful, and it can only be determined by careful experiments. I have seen mares that had been removed from a place where several abortions had oc-

curred, abort in two or three weeks after, showing all the symptoms of those from which they had been removed.

The mares after abortion usually need very little attention, but occasionally uterine and vaginal troubles occur, some of which are very serious.

Last winter on a large stock farm having pregnant mares, an outbreak of abortion occurred with the direst results. Two imported Percheron and three common mares were lost that had aborted, and every known precaution was taken to check the disease and preserve the remaining mares, but scrupulous cleanliness, thorough disinfection, changes of food and location from one part of farm to another, proved of no avail, as the mares continued to abort. When only three remained, working on the theory that the infectious germ gained admission through the genital canal, I had mercuric solution applied to the vulva and part of the vagina every day. One aborted in a few days (which in all probability had been inoculated before the treatment was begun) while the remaining two carried their foals the natural time, and delivered them healthy and strong.

This experience does not by any means conclusively prove that the treatment preserved the mares, as it is possible that they would have carried their foals without it, but, perhaps, it is a step in the right direction and as opportunities present themselves, I intend to satisfy myself that it is really efficacious. I have not gone into a detail of symptoms, treatment, etc., which we all are acquainted with, but have aimed to stimulate a discussion that may possibly shed some light on the cause.

SCROFULOUS OSTITIS IN FOALS.

By W. F. Weese, V.S., Ottawa, Ill.

(A Paper read before the Illinois Veterinary Medical Association).

The above appellation is used by Professor Williams to designate the disease to which I wish to call your attention. Walley has given the term specific arthritis or

synovitis. By some writers it is considered a constitutional disease, by others scrofulous in its nature, while others, especially the latter school of veterinarians, consider it pyæmic or septicæmic in origin, and a sequel to or identical with omphalo-phlebitis.

The causation of the disease is ill understood, and the etiological factor has led to a diversity of names. The appellation used in the heading of this paper is a misnomer; I do not think omphalo-phlebitis is applicable in all cases or covers the pathology of the disease acceptably, while the term specific arthritis gives an insufficient latitude of signification.

The object in presenting this paper is more with a view of directing your attention to the disease, and soliciting your individual experiences, than to casting any light on the etiological phase of the disease, and should I before its conclusion venture upon debatable ground, I am desirous of being understood as only advancing conclusions which have not been sufficiently verified by experimentation to withdraw them from the range of hypothetical conjecture.

The disease has received attention from some of the leading veterinarians of Europe, being described as early as 1781, at Turin, by Brugnone. Among the most prominent investigators may be mentioned Roloff, Bollinger and Walley, from whose writings I have drawn much valuable information. Williams advocated as the intrinsic cause of the disease, a scrofulous diathesis, and ascribes the suppuration of articulations to deposit of a degraded form of albuminoid matter, which excites a form of strumous inflammation leading to ulceration of articular cartilage, and caries, and attributes the pervious urachus to a deposit of tubercular matter at the urachus which prevents the adhesion of its walls.

The term scrofula is being restricted in its application by medical writers and practitioners, it formerly having an indefinite latitude of meaning. The morbid product is now believed by leading micro-pathologists to be, if not truly tuberculous, bearing almost an identical resemblance. There is abundant proof I think, that the disease is not constitutional or hereditary. The fact that the disease occurs only during

lactation militates against, if not disproves, its scrofulous or hereditary origin.

The eminent pathologist Bollinger made a series of investigations as early as 1870, and his opinion, founded on clinical observations and post-mortem appearances, merits the greatest consideration, not that I believe his etiology is correct in detail, but his observations suggest something of the life history of the germ which is undoubtedly the cause of the affection. The result of his observations led him to believe that there was a complete analogy between this disease and omphalitis occuring in maternity hospitals. He thus attributes the pathological processes to an inflammation of the umbilicus, septic in origin; there is inflammation of the umbilical vein, the decomposed and softened thrombus communicates with the vena portæ and forms a source of metastatic septicæmia or pyæmia, affecting synovial membranes and involving at times the pleura, pericardium and choroid coat of the eye. The lungs and other internal organs become affected from the same source. Walley does not adhere to Bollinger's view as to septic infection taking place at the umbilicus, but insists that the primary cause of the disease is the imbibition of milk from the dam which is septicæmic or pyæmic. In an article treating on the disease in lambs he says, "that it is due to and must be associated with an altered condition of the mother's milk is proved by the fact that it only attacks young animals while sucking the dam; that ewes coincidentally die from malignant parturient fever, though it must be borne in mind that it is not necessary that the ewe should exhibit any external symptoms of a diseased condition of the blood."

Roloff's observations led him to believe that the disease was at times congenital. I have witnessed the advent of this malady in such a manner that I have thought the idea worthy of consideration. An autopsy of a colt fifteen days old, which had succumbed to this disease, revealed the parts approximating the urachus in a healthy condition, and showed no trace of former inflammatory action; upon examination of the liver it was found soft and friable, and containing a cavity as large as a walnut, filled with inspissated pus which was so

hard it was with difficulty crushed with the hand. The hardness of the pus led me to think that the cavity might have been a center of suppuration during intra-uterine life, and the point of departure of the subsequent disease. Williams (*Principles and Practice of Veterinary Medicine, p.* 716), says in connection with an article on nephritis: "The next case was that of a foal two days old which had died from acute suppurative arthritis. A post-mortem examination revealed not only the presence of pus in the tissues surrounding the articulations, but sundry purulent points in the kidneys, the pus in which being more or less inspissated or caseous. I look upon this case as important, as to some extent it supports the view that 'joint disease' occurring in young animals is not always a primary disease, but secondary to the formation of pus in other parts of the organism."

Another case which came to my notice may be mentioned in this connection. A colt in breeding a high grade Norman was foaled with a large umbilical cord, measuring about two or two and a half inches in diameter. I saw the colt when only a few hours old and it seemed lively, but showed unmistakably signs of previous inflammation of umbilical cord. The parts were kept as nearly antiseptic as possible by washing with bichloride solution and the application of absorbent cotton. The patient died on the fifth day from omphalitis and showing symptoms of arthritis.

Taking my experience with the disease as a criterion, I should say that the dam occasionally is the medium by which the colt gets the specific germ, or at the least is responsible for the susceptibility of the foal. In support of this opinion I submit the following: The disease occurs more frequently among the heavy draft breeds, it being very rare in the light harness horse. Plethora, past system of breeding or some non-specific condition or influence must be present in this class of dams to render the foal more susceptible to the micro-organism. My attention has been directed to a few draft mares, the majority of whose foals would succumb to the disease. Two cases in particular. A Clyde mare lost three out of five colts, the last two of which were given special care

from time of birth to prevent septic infection taking place at the umbilicus. The second, a Norman, in breeding had three colts in succession affected, the last of which made a recovery. This mare always had more of less mammitis subsequent to parturition, and the colt which made the recovery was taken from her and placed on a mare which lost her colt from accidental causes.

Again the post-mortem examination of subjects does not invariably reveal present or previous inflammation at the umbilical region, which would reasonably be expected if the umbilicus was always the point of ingress of infected material.

I have thought, although my clinical and pathological researches have not been sufficiently extended to warrant the assertion, that there was a difference between this suppurative joint disease and omphalitis proper. However, I will desist from taking up that branch of the subject in the present paper.

Symptoms.—The symptoms, depending upon the localization of pathological lesions, are variously enumerated, of which I shall only give a synopsis. The premonitory symptoms are usually increased respirations and pulse, elevated temperature varying from normal to 105° F., and an injected appearance of the mucous membranes. Concomitant with or succeeding these phenomena, the urachus may be pervious, although it is not by any means a constant symptom. Diuresis is present, especially during the onset of the attack, the urine being very light in color and ordinarily giving an acid reaction. The specific gravity averages about 1040 and upon microscopical examination reveals several fat globules and occasionally renal casts. Digestive irregularity is not an unusual condition found present, manifesting itself by constipation or diarrhœa. The characteristic swellings make their appearance in various parts of the body, usually involving the articulations, producing a painful arthritis. The animal may be found stiff and lame without any visible enlargements, which is likely to lead the attendant to attribute it to an injury incurred by the dam's stepping on the foal. The swellings are round, have a doughy feel on manipulation and are in-

tensely painful. During the incipient stage they may be more or less metastatic, which might lead one to attribute them to rheumatism; however, they are unlike rheumatismal swellings in being subject to suppuration and a general destructive process.

The patient occupies the recumbent position a good deal of the time and relieves the pressure at the affected joints as much as possible by flexion. Should the disease be progressive, the muscular abscesses burst if not opened mechanically, discharging a white colored, offensive pus. The swellings of the articulations and surrounding synovial sacs become soft, the contained fluids and semi-solids escaping, leaving sinous ulcers which do not readily heal. The discharges are fœtid when osseous and ligamentous structures are involved. Dropsical effusions with the serous cavities and the lax connective tissues are of common occurence. Erysipelatous inflammations, involving the integument around abscesses, naval and local dropsical swellings, are conditions with which the practitioner has to contend at times.

Post-mortem Appearances.—Post-mortem examinations reveal many different lesions. Among the most common may be mentioned inflammation of umbilical vessels with thrombosis in process of suppuration, purulent arthritis and intra-muscular or subcutaneous abscesses. The liver at times exhibits the alterations of acute parenchymatous hepatitis; abscesses form in the organ and the extension of inflammation of the umbilical vein to the hepatic ramifications of the vena portæ are found. The kidneys, heart and lungs may be affected; the spleen is frequently soft in texture and comparatively bloodless. Catarrhal enteritis, accompanied by hyperplasia of the mesenteric glands, irido-choroiditis and tumefaction of the bronchial and other glands are conditions found present less frequently.

Examination of the bones where arthritis has been severe will reveal caries, deposits in the cancellated structure, softening of the cartilages uniting the epiphyses by cellular proliferation, thickening of periosteum and its detachment in places, ulceration of articular cartilage and ligamentous attachments.

Sequelæ.—Three cases which had apparently made complete recovery from the disease have been brought to my notice subsequently, suffering from complications which undoubtedly had their origin in the malady. Two of the foals seemed well and thrifty till about one year old, when swelling and lameness at the stifle was detected. In one case both joints were involved, while in the other but one was affected. The same articulations were implicated during the acute attack of the disease. Treatment in both cases proved fruitless, the patients gradually growing worse till unable to rise. The subjects were destroyed, showing the capsule of the affected joints greatly inflamed, the ligamentous structures were a pale yellow and soft and easily detached from insertions. The cavities of joints and serous sacs contained seropurulent fluid. The articular cartilages were ulcerated in spots both within the femoro-tibial and femoro-patellar articulations, and the synovial apparatus was perforated in numerous places. The third case at the age of eight months commenced to show symptoms not unlike chronic rheumatism, becoming distorted in all of its limbs, one hock was greatly inflamed, the same being affected during the acute attack of the disease, and was doutless similar as to diseased processes as the other cases given. Unfortunately no post-mortem was held in this case, which detracts from its merit as a citation.

Prognosis.—It is always advisable for the veterinarian to be guarded in prognosis, as the mortality is very great under the most favorable conditions. Some writers record the death rate as high as sixty and eighty per cent. This however is higher than my experience with the disease would indicate, especially if treatment is resorted to at the first manifestation of symptoms. If suppuration is established when the veterinarian is consulted an unfavorable termination may be predicted in almost every instance.

Treatment.—Too much importance cannot be attached to the prophylactic consideration of the disease. Recognizing the affection as micro-organismal in origin and the umbilicus as one of the points of ingess of infected material, it behooves the practitioner to recommend that the umbilical cord be

thoroughly anticeptisized and a ligature applied close to the abdominal wall as soon after the colt is foaled as possible. I have witnessed the practical workings of this mode of procedure for some time and am convinced that its adoption will cause a diminution in the number of foals affected with omphalitis. The hygienic surroundings of foal and dam are important factors in prophylaxis and must not be overlooked. The medicinal treatment of this disease has been very unsatisfactory and is so yet in a great many instances, especially so when treatment has not been resorted to at the very commencement of the attack. The treatment of the disease manifestly must be directed towards preventing suppuration, palliating the digestive and assimilative irregularities, and modifying the local manifestations of the malady.

A purgative or laxative is usually indicated to remove the poisonous, effete and excrementitious matters which are the cause or source of digestive irritability, and to restore as near as possible the secretions to their normal constituents. The therapeutic agent best suited to the purpose is castor oil, with which a little bicarbonate of soda may be advantageously combined. One to three drachm doses of sodium salicylate administered from four to six times daily, exert a powerful action on the pyrexia and have a tendency to prevent suppuration, doubtless by their antiseptic action on the pathological organism of the disease. Small doses of alcohol in combination with the salicylate in the first stages may be given with benefit. The dose of salicylate of sodium should be gradually decreased as the temperature falls, and during convalescence potassium iodide may be substituted. After the subsidence of the action of the purgative and the temperature is not high, syrup of hypophosphites may be given in one or two ounce doses three times daily. This preparation, containing to each fluid ounce:

Hypophosphite	Potass - - - - - -	grains	1½
"	Lime - - - - - - -	"	1
"	Iron - - - - - - -	"	1½
"	Manganese - - - -	"	1
"	Quinine - - - -	"	1½
"	Strychnine - - - -	"	1/16

is a very efficient auxiliary in the treatment of the disease.

Locally, fomentations and anodyne embrocations should be applied. The application of blisters during the acute stage is of doubtful utility and I belive the practice pernicious, as it tends to increase the pain and consequent restlessness—factors to be combatted. During cold and damp weather the requisite amount of heat should be kept to inflamed joints by flannel bandages and a dry, well-bedded box insisted upon for the foal and dam's occupancy.

If the urachus is pervious it should be taken up and ligatured according to the rules usually laid down for that operation. Should abscesses forms the care and treatment require no special mention. And lastly, the condition of the dam should be scrutinized and if there is reason to believe that the milk is deleterious in quality the colt should be taken from its mother and placed on another mare or fed cow's milk.

OSTEO-POROSIS.

By Dr. Geo. H. Berns.

(A Paper read before the Long Island Veterinary Society.)

Among the many diseases that a practising veterinarian meets with, I know of none that terminates more unsatisfactorily to the owners of live stock, and is more annoying and of less credit to the practitioner than the complaint known as *osteo-porosis*, or big head.

Hundreds of animals are annually lost in this city alone, from this disease, and the veterinarian when called in has, in the majority of instances, but little difficulty to diagnose the cases, but unfortunately that is all he can do. He can be of little service to the animal, and from our present knowledge cannot even give the owner satisfactory information as to its probable causes, nor advise preventative measures. An interchange of views and free discussion upon this subject by the members of this Society will no doubt bring out many points of interest and value, and with this object in view I have prepared these few lines.

Upon symptoms, except a few premonitory ones, I will

waste no time, for the characteristic enlargements of the bones of the face and lower jaws have been frequently seen and recognized by all, but in many instances we are called weeks or even months before any such well developed symptoms exist. We find a horse lame on the near hind leg, with a history that he has been lame for some time, starts off on his toe when first leaving the stable and warms out of it after he travels awhile.

We carefully examine the hock, pastern and foot, but fail to find anything abnomal, excepting a slight coarseness of the hock. Under the circumstances we consider ourselves justified to diagnose spavin, and fire and blister the hock and order the patient turned out to pasture for one or two months. In three or four weeks after the operation we are notified that our patient is not doing well and, requested to visit him again in the country, we find him lame in the left shoulder this time, otherwise apparently all right. We attribute the shoulder lameness to some accidental injury or perhaps rheumatism, prescribe a mild liniment and advise the owner to keep his horse tied up in a dry stable for a short time.

Two or three weeks later we are called again, find the patient all crippled up across the loins. We begin to look for enlargement of the lower jaw, but are unable to express a positive opinion; advise anti-rheumatic treatment, horse taken up and placed in a good dry stable. Two or three weeks later we are called again and find our horse with a peculiar enlongated condition of the thigh, and point of hock coming down to within six or eight inches of the ground when forced to place weight upon the affected limb, and with well marked enlargement of lower jaw. Of course the case is plain enough, we have made a mistake in our original diagnosis and caused the owner to spend considerable money upon an incurable patient.

The premonitory symptoms, therefore, are of the greatest importance. Stiffness across the loins, causing the animal's gait to be of a peculiar rigid character, is in my opinion the first and probably the most suggestive premonitory symptom in the majority of cases; next of importance is obscure lame-

ness, particularly if involving more than one limb. While I do not wish to say that lumbago and rheumatic lameness do not exist in horses, I am satisfied that seventy-five per cent. of all the cases diagnosed as such will turn out to be cases of osteo-porosis. In many cases a general unthrifty condition of the animal, and partial loss of appetite without any apparent cause, may also be noticed in the early stages. English veterinarians have evidently given the subject considerable attention. Very many cases are on record, and the symptoms and post-mortem appearances, as well as the structural changes in the bones, as revealed by the microscope and chemical analysis, have been carefully studied and minutely described by Prof. Varnell, Dr. Harly, Prof. Williams and others. Germany ,the acknowledged centre of scientific investigation, has, as far as I have been able to ascertain, contributed little or nothing to the knowledge of this disease, and it is therefore reasonable to infer that it cannot exist in that country to any great extent.

Now let us speculate upon the probable causes and consider the length of time it takes to develop. The English, basing their opinion largely upon animals out on pasture or confined in farm stables, seem to think that defective assimilation and mal-nutrition are the probable causes, and Prof. Williams in his Surgery, finishes his very able article on the subject by saying: "In all probability it will be discovered that the disease is due to the absence of some essential ingredient of the food or its presence in such small quantities as to be insufficient for the necessities of the animal, or the presence of some other ingredient in such super-abundance as to destroy the perfect composition of the aliment as a whole and thus render it unfit for assimilation, or so change it as to cause it to become even an irritant to the osseous system of the animal." As I have not been able to find the subject referred to in any other work at my command, I take it for granted that his views upon this disease are probably generally accepted by English veterinarians.

My experience with the disease, taking it from a practical point of view, compels me to question the soundness of Prof.

Williams' opinion. I have seen and in some instances observed for months a very large number of cases in this city. Some years ago, when this disease was not as well understood and not as popular (if I may use the term) among veterinarians as it was now, it is my good fortune—or misfortune, I hardly know which—to come in contact with some ten or twelve cases inside of a few months.

In 1879, shortly after I graduated, I saw my first case of osteo-porosis, and there being one or two interesting events connected with it, I will here briefly refer to it. A bay gelding, six years old, the property of a well-known grocer, had been attended by a self-educated veterinarian of good standing for a number of weeks for intermittent lameness, distemper and a peculiar swelling of the head to which the owner had repeatedly called his attention and for which a liniment had been prescribed. When I was called in to see him some eight or ten days after the above-referred-to practitioner had discharged him as being cured, the animal presented all the symptoms of an ordinary acute case of influenza, but upon placing my finger upon the submaxillary artery I was surprised at the immense thickness of the inferior maxilla, and viewing the side of his face I could not help but notice a peculiar fullness under the eyes—in fact the animal's head presented a very striking appearance even to an ordinary observer. Questioning the owner elicited the above history. A diagnosis of osteo-porosis was made and the owner informed that his horse would very probably speedily recover from the influenza, but I advised him to dispose of him as soon as he was well, for the other complaint was positively incurable, and would render the animal useless for the remainder of his life—basing my opinion purely upon lectures heard at college and Prof. Williams' writings upon the subject. A few days later meeting Dr. H. Hausman—as you all know, a regular graduate in veterinary medicine, and an able practitioner of probably thirty or forty years standing, having practiced in this city, to my knowledge, for about twenty years—I related the case to him; he manifested considerable interest in the same and expressed a desire to see it. Dr. H. and myself visited the patient the next day and the doctor admitted that

it was a peculiar case, that he had never seen one before, and asserted that if he had been called in he would have certainly put the animal under experimental treatment, as the case was of such an unusual character.

I willingly consented to place the patient under his care and he experimented with him for all of four weeks; at the expiration of that time the horse, being unable to masticate his food because of irregular, chisel-shaped molars which lacerated the palate, he was cast for operation upon his teeth, but being unable to rise again was either destroyed or died of exhaustion. The horse's head I prepared for a specimen and it is still in my possession. Since that time I venture to say that over two hundred cases have come under my observation in practice. I not only became deeply interested in the disease, but quite enthusiastic, and at one time I could see osteo-porosis in horses when no one else could, the result being that quite a few extremely embarrassing mistakes were made in diagnosis. Without any exception every one of the two hundred or more cases were found in cellar stables or in stables on the level of the street without cellars under them; most all of them were old stables that had been used for years, with the floors resting upon sleepers lying in the ground. A great many of the stables were located in sections of the city where the ground had been made by filling in swamps with street sweepings, ashes, garbage and material of that character. In stables of this description, containing twenty-five horses, I consider it nothing unusual to find one or two cases of osteo-porosis every year, and I could mention probably seven or eight grocers who keep but one horse each, that have lost or been obliged to dispose of two, and in some two or three instances three horses each during the last ten years from the disease, a large number of which were young animals examined by me for soundness before they were bought. In stables on the second floor or stables with cellars under them, or stables built on spiles even if on low ground, where a free current of air is allowed to circulate under the floors, I have never seen a case that originated or developed there, further than this: I have seen well developed cases showing intermittent lameness and enlargements of the bones of the face, changed from

one location to another, where the change seemed to arrest the progress of the disease, where the lameness subsided and the animals remained able to do their work for years after. A client of mine a few days ago, whose word can be relied upon, told me of a certain horse which I told him to dispose of some two years ago, having osteo-porosis so well marked that he himself noticed the enlargement of the facial bones first, and which had been sold to a farmer at that time. He had seen the horse recently, and the swelling of the bones of the head had disappeared, and the horse was doing good service for his present owner.

As to the period of incubation and length of time it takes to render the animal useless if kept in the same stable and under the same conditions, I should say from three to twelve months.

As to whether the disease can be transmitted from sire or dam to offspring, I am not prepared to say, as my practise is exclusively in the city, and the early history of the cases I have seen could not be traced.

I do know of two cases, however, where mares suffering from osteo-porosis had good healthy colts last spring and both colts up to this time are apparently in perfect health, both mares being dead.

According to Williams, Varnell was the first man to describe this disease in 1860 and it seems reasonable to suppose that it did not exist to any great extent prior to that in England. I am satisfied that there was none of it in Percival's time, for he was as careful an observer and as brilliant a writer as has ever contributed to veterinary literature.

In this country I believe it to be of comparatively recent origin. The very fact that Dr. Hausman had never seen a case prior to 1879, would strongly point in this direction.

As to causes: Considering the cases that have come under my observation, and more particularly the conditions and location of the stables in which these cases were found, I cannot help but conclude that a specific germ, vegetable or mineral, or perhaps a gas, the development or generation of which is favored by certain soils and certain conditions, are the most probable causes; and that this substance, whatever it may be, finds its way into the body of animals, acts specifically upon

the osseous system, and causes degeneration of a destructive character. From our present knowledge, it would be folly to attempt treatment. Prevention, however should be aimed at, and during the last six months I have made an effort to have all animals showing the slightest suspicious symptoms of osteo-porosis, removed to other stables, and in all stables where the disease appeared repeatedly I have had the floors taken up, and two or three feet of urine and manure-saturated soil removed, the old flooring-boards and sleepers carefully cleaned and disinfected, and a new supply of good, fresh sandy soil put down before the floors were replaced. In cases where it was possible to have the floors raised twelve or eighteen inches from the ground, I have strongly advocated to owners the advisability of doing so. As these preventive experiments have been tried by me for the limited period of six months only, I am not prepared to say at this time that they are of any special benefit.

PEROXIDE OF HYDROGEN AND OZONE.

THEIR ANTISEPTIC PROPERTIES.

A Paper read before the International Medical Congress, held at Berlin, Germany, on the 7th of August, 1890.

By DR. PAUL GIBIER, Director of the Pasteur Institute of New York.

GENTLEMEN: Since the discovery of peroxide of hydrogen by Thenard, in 1818, the therapeutical applications of this oxygenated compound seem to have been neglected both by the medical and the surgical professions; and it is only in the last twenty years that a few bacteriologists have demonstrated the germicidal potency of this chemical.

Among the most elaborate reports on the use of this compound may be mentioned those of Paul Bert and Regnard, Baldy, Péan and Larrivé.

Dr. Miguel places peroxide of hydrogen at the head of a long list of antiseptics, and close to the silver salts.

Dr. Bouchut has demonstrated the antiseptic action of peroxide of hydrogen, when applied to diphtheritic exudations.

Prof. Nocart, of Alfort, attenuates the virulence of the

symptomatic microbe of carbuncle, before he destroys it, by using the same antiseptic.

Dr. E. R. Squibb,* of Brooklyn, has also reported the satisfactory results which he obtained with peroxide of hydrogen in the treatment of infectious diseases.

Although the above-mentioned scientists have demonstrated by their experiments that peroxide of hydrogen is one of the most powerful destroyers of pathogenic microbes, its use in therapeutics has not been as extensive as it deserves to be.

In my opinion the reason for its not being in universal use is the difficulty of procuring it free from hurtful impurities. Another objection is the unstableness of the compound, which gives off nascent oxygen when brought in contact with organic substances.†

Besides the foregoing objections the surgical instruments decompose the peroxide, hence, if an operation is to be performed, the surgeon uses some other antiseptic during the procedure, and is apt to continue the application of the same antiseptic in the subsequent dressings.

Nevertheless, the satisfactory results which I have obtained at the Pasteur Institute of New York with peroxide of hydrogen, in the treatment of wounds resulting from deep bites, and those which I have observed at the French clinic of New York, in the treatment of phagedenic chancres, varicose ulcers, parasitic diseases of the skin and also in the treatment of other affections caused by germs, justify me in adding my statement as to the value of the drug.

But it is not from a clinical standpoint that I now direct attention to the antiseptic value of peroxide of hydrogen. What I now wish is merely to give a full report of the experiments which I have made on the effects of peroxide of hydrogen upon cultures of the following species of pathogenic microbes: Bacillus anthracis, bacillus pyocyaneous, the bacilli of typhoid fever, of asiatic cholera and of yellow fever, strepto-

Gaillard's Medical Journal, March, 1889.

†The peroxide of hydrogen that I use is manufactured by Mr. Charles Marchand, of New York. This preparation is remarkable for its uniformity in strength, purity and stability.

coccus pyogenes, micro-bacillus prodigiosus, bacillus megaterium and the bacillus osteomyelitis.

The peroxide of hydrogen which I used was a 3.2 per cent. solution, yielding fifteen times its volume of oxygen, but this strength was reduced to about 1.5 per cent. corresponding to about eight volumes of oxygen, by adding the fresh culture containing the microbe upon which I was experimenting. I have also experimented upon old cultures loaded with a large number of spores of the bacillus anthracis. In all cases my experiments were made with a few cubic centimeters of culture in sterilized test-tubes, in order to obtain accurate results.

The destructive action of peroxide of hydrogen, even diluted in the above proportions, is almost instantaneous. After a contact of a few minutes, I have tried to cultivate the microbes which were submitted to the peroxide, but unsuccessfully, owing to the fact that the germs had been completely destroyed.

My next experiments were made on the hydrophobic virus in the following manner:

I mixed with sterilized water a small quantity of the medulla taken from a rabbit that had died of hydrophobia, and to this mixture added a small quantity of peroxide of hydrogen. Abundant effervescence took place, and, as soon as it ceased, having previously trephined a rabbit, I injected a large dose of the mixture under the dura mater. Slight effervescence immediately took place and lasted a few moments, but the animal was not more disturbed than when an injection of the ordinary virus is given. This rabbit is still alive, two months after the inoculation.

A second rabbit was inoculated with the same hydrophobic virus which had not been submitted to the action of the peroxide, and this animal died at the expiration of the eleventh day with the symptoms of hydrophobia.

I am now experimenting in the same manner upon the bacillus tuberculosis, and if I am not deceived in my expectation, I will be able to impart to the profession some interesting results.

It is worthy of notice that water charged, under pressure,

with fifteen times its volume of pure oxygen has not the antiseptic properties of peroxide of hydrogen. This is due to the fact that when the peroxide is decomposed nascent oxygen separates in that most active and potent of its conditions next to the condition, or allotropic form, known as "ozone.' Therefore it is not illogical to conclude that ozone is the active element of peroxide of hydrogen.

Although peroxide of hydrogen decomposes rapidly in the presence of organic substances, I have observed that its decomposition is checked to some extent by the addition of a sufficient quantity of glycerine; such a mixture, however, cannot be kept for a long time, owing to the slow but constant formation of secondary products, having irritating properties.

Before concluding I wish to call attention to a new oxygenated compound, or rather ozonized compound, which has been recently discovered and called "glycozone," by Mr. Marchand.

This glycozone results from the reaction which takes place when glycerine is exposed to the action of ozone under pressure—one volume of glycerine with fifteen volumes of ozone produces glycozone.

By submitting the bacillus anthracis, pyocyaneous, prodigiosus, and megaterium to the action of glycozone, they were almost immediately destroyed.

I have observed that the action of glycozone upon the typhoid fever bacillus, and some other germs, is much slower than the influence of peroxide of hydrogen.

In the dressing of wounds, ulcers, etc., the antiseptic influence of glycozone is rather slow if compared with that of peroxide of hydrogen, with which it may, however, be mixed at the time of using.

It has been demonstrated in Pasteur's laboratory that glycerine has no appreciable antiseptic influence upon the virus of hydrophobia; therefore, I mixed the virus of hydrophobia with glycerine, and at the expiration of several weeks all the animals which I inoculated with this mixture died with the symptoms of hydrophobia.

On the contrary, when glycerine has been combined with ozone to form glycozone, the compound destroys the hydrophobic virus almost instantaneously.

Two months ago, a rabbit was inoculated with hydrophobic virus, which had been submitted to the action of this new compound, and the animal is still alive.

I believe that the practitioner will meet with very satisfactory results with the use of peroxide of hydrogen for the following reasons;

1. This chemical seems to have no injurious effect upon animal cells.

2. It has a very energetic destructive action upon vegetable cells—microbes.

3. It has no toxic properties; five cubic centimeters injected beneath the skin of a guinea-pig do not produce any serious result, and it is also harmless when given by the mouth.

As an immediate conclusion resulting from my experiments, my opinion is, that the peroxide of hydrogen should be used in the treatment of diseases caused by germs, if the microbian element is directly accessible; and it is particularly useful in the treatment of infectious diseases of the throat and mouth.

EXTRACTS FROM FOREIGN JOURNALS.

CHLORHYDRATE OF PILOCARPINE IN ACUTE DISEASES OF THE FOOT.

By Dr. Modigliani.

While acknowledging the benefits obtained by the use of this drug in the treatment of all rheumatic affections, the author also recommends it in acute diseases of the foot, as in laminitis (acute podo-flemmatitis). In a first case, that of a horse nine years old, he injected subcutaneously twenty-two centigrammes of chlorhydrate of pilocarpine, in solution with seven grammes of water, obtaining all the physiological manifestations of the medicine, ptyalism, abundant diaphoresis, defecation, etc., and with these a manifest improvement. After the first day, a second and third injection, given with the same results, brought on also a final recovery on the fourth day. In a second case, of a rheumatic nature, a similar result followed two successive injections of thirty centi-

grammes of the same drug. In the third case, an attack of laminitis in the fore extremities, following broncho-laryngitis, was radically cured by only two injections of twenty-two centigrammes of the pilocarpine. These cases were very wonderful in their results, and well deserve confirmation.—*Ercolani.*

SUBCUTANEOUS INJECTIONS OF SPIRIT OF TURPENTINE.

By Dr. Trinchera.

In order to confirm the results following the subcutaneous or intra-muscular injection of irritating liquids, which were said in many cases to be accompanied with suppuration, the author has performed a series of experiments, taking at the same time all the antiseptic precautions necessary to prevent the establishment of the suppurative process. The experiments were tried upon horses, because of the well-known pyogenic predisposition of that animal. Injections of ten, fifteen, twenty, twenty-five, thirty, thirty-five and forty grammes of spirit of turpentine were made in the subcutaneous connective tissue of the shoulder, and in the thickness of the muscles. There was in every case a well marked inflammatory swelling below the point of injection, but it was never followed by suppuration.

Conclusions.—Spirit of turpentine can be administered by the skin with impunity, in as large a dose as forty grammes, so long as proper antiseptic precautions are observed.

2d. But this medication is scarcely justifiable on account of the large inflammatory swelling which follows its use.—*Clinica Veterinaria.*

TREATMENT OF ALL FORMS OF SEROUS CYSTS.

By Mr. Chobaud.

Serous cysts are common in horses, and are observed in nearly all the regions of the body. The most common are those of the elbow (shoe boil), the hock, the anterior face of the fetlock, the knee, the internal face of the canon, the back, the loins, the withers and the thigh. The modes of treatment are numerous and varied, and in many instances unsuccessful. They include the douche, frictions, massage, punctures, pres-

sure, setons, deep cauterization, iodine injections, electro-puncture, etc.

The author recommends a treatment which, in twenty-five cases of various degrees of gravity, has been followed by rapid recovery after a duration of twenty days. The first indication is to puncture the cyst in the most dependent part, and to thoroughly evacuate its contents; then to fill the cavity well with oakum soaked in a concentrated alcoholic solution of bichloride of mercury (four grammes of bichloride to one hundred grammes of alcohol). The oakum is left in place for from twenty-four to forty-eight hours, and then removed. A severe inflammation is then established in the walls of the cyst, which rapidly brings on their adhesion and cicatrization. This treatment, short and certain, is based on the same principle as that by irritating injections.—*Repertoire de Pol. San. Vet.*

TREATMENT OF UMBILICAL HERNIA BY LUTON'S METHOD.

By Mr. Lenormaud.

This consists in the subcutaneous injection of a saturated solution of common salt, carefully filtered when cool. A colt having a large hernia was treated in this way, by the introduction of half of a syringe of Pravaz on each side of the hernial sac. After the injection a bandage was applied. The next day there was a large swelling under the abdomen, and extending under the chest, which began to diminish after a few days. The recovery was complete and radical in a month.—*Presse Veterin.*

PROLAPSUS AND LACERATION OF THE VAGINA IN A MARE —EVENTRATION—RECOVERY.

By Mr. Audard.

A mare which had been delivered some fifteen days previous was suffering with prolapsus of the vagina. Before delivery and during the last months of gestation she exhibited the same condition, but it disappeared every time spontaneously. On this last occasion she was in pain; dull and making violent expulsive efforts. Between the lips of the vulva appeared a cylindrical tumor, of a red color and the size of a

man's head, at the lower end of which was a circular opening through which the finger passed into the neck of the uterus. The upper extremity was folded in its length, and was pedunculated by the contraction of the vulva. The tumor was smooth, and the slightest touch upon it excited violent expulsive efforts.

The diagnosis being well established, immediate measures were taken to reduce the organ to its normal position, this not being accomplished without a great deal of resistance on the part of the patient. Everything, however, seemed to be going on well, when, as the organ was about resuming its normal position, the hand of the operator slipped through the vaginal walls, and a large portion of the folded colon suddenly escaped through a longitudinal laceration of the upper wall of the vagina. More than a yard and a half was then protruding, but after many difficulties and much careful manipulation, everything was at length returned in place. An attempt to close the wound of the vagina was then successfully made, and it was secured by an interrupted suture. The parts being carefully washed and disinfected, the vulva was closed and secured with seven strong stitches, and a bandage applied upon it to resist the violent straining of the patient, which continued for some time. The prognosis of this case was very serious, and her death was expected during the night. The next day she was more comfortable, having had a good night, the efforts and the colic subsiding after a second dose of ether administered during the night. The fever had diminished and appetite had returned. The stitches of the vulva were removed, but the outside bandage was left in place. The third day convalescence was complete.—*Revue Veterinaire.*

OVARIOTOMY IN A NYMPHOMANIC MARE.

By Mr. J. Bourges.

In his excellent work upon the castration of nymphomanic and vicious mares, Mr. Delamotte has made a careful distinction between the cases which are liable to be benefited by the operation and those in which the results are likely to be negative. Mr. J. Bourges reports a case which evidently belongs

to the first class and thoroughly illustrates the good that can be effected by the operation. A gentleman, a cavalry officer, had a mare which had by degrees become unmanageable, and dangerous to approach, even for the man who had her in charge. No other treatment appearing to have any effect, castration was decided upon, and the operation was performed in the standing position, the mare being secured in stocks and placed partially under the influence of anæsthesia. The operation was performed with all possible antiseptic precautions, and lasted less than fifteen minutes. As the operator was drawing away his hand from the vagina, a fold of the small colon protruded into the passage, but was readily restored to its position, to return no more, notwithstanding the efforts and contractions of the animal. Ten days after the operation she resumed her place in her stable and was returned to her work, having lost her irritable and dangerous disposition (and quite reformed in character).—*Revue Veterinaire.*

SANITARY LEGISLATION.

ORDER AND REGULATIONS FOR THE INSPECTION OF CATTLE AND SHEEP FOR EXPORT.

U. S Department of Agriculture,
Office of the Secretary,
Washington, D. C., October 20, 1890.

The following order and regulations are hereby made for the inspection of neat cattle and sheep for export from the United States to Great Britain and Ireland and the Continent of Europe, by virtue of the authority conferred upon me by Section 10 of the Act of Congress approved August 30, 1890, entitled "An Act providing for the inspection of meats for exportation, prohibiting the importation of adulterated articles of food or drink, and authorizing the President to make proclamation in certain cases, and for other purposes:"

1. The Chief of the Bureau of Animal Industry is hereby directed to cause careful veterinary inspection to be made of all neat cattle and sheep to be exported from the United States to Great Britain and Ireland and the Continent of Europe.

2. This inspection will be made at any of the following

named stock yards;—Kansas City, Mo.; Chicago, Ill.; Buffalo, N. Y.; Pittsburg, Pa.; and at the following ports of export, viz:—Boston and Charlestown, Mass.; New York, N. Y.; Philadelphia, Pa.; Baltimore, Md.; and Norfolk and Newport News, Va. All cattle shipped from any of the aforesaid yards must be tagged before being shipped to the ports of export. Cattle arriving at ports of export from other parts of the United States will be tagged at said ports.

3. After inspection at the aforesaid stock-yards, all cattle found free of disease and shown not to have been exposed to the contagion of any contagious disease, will be tagged under the direction of the Veterinary Inspector in charge of the yards. After tagging, the cattle will be loaded into cleaned and disinfected cars, and shipped through from said yards, in said cars, to the port of export.

4. All animals will be re-inspected at the port of export. All railroad companies will be required to furnish for the transportation of cattle and sheep for export, clean and disinfected cars, and the various stock-yards located at the ports of export shall keep separate, clean and disinfected yards for the reception of export animals only.

5. Shippers will notify the Veterinary Inspector in charge of yards, of intended shipments of cattle, and will give to the said Inspector, when possible, the name of the locality from which said animals have been brought, and the name of the feeder of said animals, and such further and other information as may be practicable, for proper identification of the place from which said animals have come.

6. The Inspector, after passing said cattle, and tagging the same, will notify the Veterinary Inspector in charge of the port of export of the inspection of said animals, giving him the tag numbers, and the number and designation of the cars in which said animals are shipped.

6. Export animals, whenever possible, shall be unloaded at the port of export from the cars in which they have been transported directly at the wharves from which they are to be shipped. They shall not be unnecessarily passed over any highway or removed to cars or boats which are used for conveying other animals. Boats transporting said animals

to the ocean steamer must be first cleansed and disinfected under the supervision of the Veterinary Inspector of the port, and the ocean steamer must, before receiving said animals, be thoroughly cleaned or disinfected in accordance with the directions of said Inspector. When passage upon or across the public highway is unavoidable in the transportation of animals from the cars to the boat, it must be under such careful supervision and restrictions as the Veterinary Inspector may, in special cases direct.

8 Any cattle or sheep that are offered for shipment to Great Britain or Ireland, or the Continent of Europe, which have not been inspected and transported in accordance with this order and regulations, will not be allowed to be placed upon any vessel for exportation, as they will be deemed, under the law, to have been exposed to infection so as to be dangerous to other animals.

9. The supervision of the movement of cattle from cars and yards to the ocean steamer at the ports of export will be in charge of the Veterinary Inspector of the port. No ocean steamer will be allowed to receive more cattle or sheep than it can comfortably carry. Over-crowding will not be permitted.

10. The Veterinary Inspector at the port of export will notify the Collector of the Port of the various shipments of cattle or sheep that are entitled to clearance papers, and certificates of the inspection of said animals will be given to the consignors for transmission with the bills of lading.

AN ACT

providing for the inspection of meats for exportation, prohibiting the importation of adulterated articles of food or drink, and authorizing the President to make proclamation in certain cases, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of Agriculture may cause to be made a careful inspection of salted pork and bacon intended for exportation, with a view of determining whether the same is wholesome, sound and fit for human food, whenever the laws, regulations, or orders of the government of any foreign country to which such pork or bacon is to be exported shall require inspection

thereof relating to the importation thereof into such country, and also whenever any buyer, seller, or exporter of such meats intended for exportation shall request the inspection thereof.

Such inspection shall be made at the place where such meats are packed or boxed, and each package of such meats so inspected shall bear the marks, stamps, or other device for identification provided for in the last clause of this section: *Provided*, That an inspection of such meats may also be made at the place of exportation if an inspection has not been made at the place of packing, or if, in the opinion of the Secretary of Agriculture, a re-inspection becomes necessary. One copy of any certificate issued by any such inspector shall be filed in the Department of Agriculture; another copy shall be attached to the invoice of each separate shipment of such meat, and a third copy shall be delivered to the consignor or shipper of meat as evidence that packages of salted pork and bacon have been inspected in accordance with the provisions of this act and found to be wholesome, sound, and fit for human food; and for the identification of the same such marks, stamps, or other devices as the Secretary of Agriculture may by regulation prescribe shall be affixed to each of such packages.

Any person who shall forge, counterfeit, or knowingly and wrongfully alter, deface, or destroy any of the marks, stamps, or other devices provided for in this section on any package of any such meats, or who shall forge, counterfeit, or knowingly and wrongfully alter, deface, or destroy any certificate in reference to meats provided for in this section, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding one thousand dollars or imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

§ 2. That it shall be unlawful to import into the United States any adulterated or unwholesome food or drug or any vinous, spirituous or malt liquors, adulterated or mixed with any poisonous or noxious chemical, drug or other ingredient injurious to health. Any person who shall knowingly import into the United States any such adulterated food or

drug or drink, knowing or having reasons to believe the same to be adulterated, being the owner or the agent of the owner, or the consignor or consignee of the owner, or in privity with them, assisting in such unlawful act, shall be deemed guilty of a misdemeanor, and liable to prosecution therefor in the district court of the United States for the district into which such property is imported; and, on conviction, such person shall be fined in a sum not exceeding one thousand dollars for each separate shipment, and may be imprisoned by the court for a term not exceeding one year, or both, at the discretion of the court.

§ 3. That any article designed for consumption as human food or drink, and any other article of the classes or description mentioned in this act, which shall be imported into the United States contrary to its provisions, shall be forfeited to the United States, and shall be proceeded against under the provisions of chapter eighteen of title thirteen of the Revised Statutes of the United States; and such imported property so declared forfeited may be destroyed or returned to the importer for exportation from the United States after the payment of all costs and expenses, under such regulations as the Secretary of the Treasury may prescribe; and the Secretary of the Treasury may cause such imported articles to be inspected or examined in order to ascertain whether the same have been so unlawfully imported.

§ 4. That whenever the President is satisfied that there is good reason to believe that any importation is being made, or is about to be made, into the United States, from any foreign country, of any article used for human food or drink that is adulterated to an extent dangerous to the health or welfare of the people of the United States, or any of them, he may issue his proclamation suspending the importation of such articles from such country for such period of time as he may think necessary to prevent such importation; and during such period it shall be unlawful to import into the United States from the countries designated in the proclamation of the President any of the articles importation of which is so suspended.

§ 5. That whenever the President shall be satisfied that

unjust discriminations are made by or under the authority of any foreign state against the importation to or sale in such foreign state of any product of the United States, he may direct that such products of such foreign state so discriminating against any product of the United States as he may deem proper shall be excluded from importation to the United States; and in such case he shall make proclamation of his direction in the premises, and therein name the time when such direction against importation shall take effect, and after such date the importation of the articles named in such proclamation shall be unlawful. The President may at any time revoke, modify, terminate, or renew any such direction as, in his opinion, the public interest may require.

§ 6. That the importation of neat cattle, sheep and other ruminants, and swine, which are diseased or infected with any disease, or which shall have been exposed to such infection within sixty days next before their exportation, is hereby prohibited; and any person who shall knowingly violate the foregoing provision shall be deemed guilty of a misdemeanor, and shall, on conviction, be punished by a fine not exceeding five thousand dollars, or by imprisonment not exceeding three years, and any vessel or vehicle used in such unlawful importation with the knowledge of the master or owner of said vessel or vehicle that such importation is diseased or has been exposed to infection as herein described, shall be forfeited to the United States.

§ 7. That the Secretary of Agriculture be, and is hereby, authorized, at the expense of the owner, to place and retain in quarantine all neat cattle, sheep and other ruminants, and all swine, imported into the United States, at such ports as he may designate for such purposes, and under such conditions as he may by regulation prescribe, respectively, for the several classes of animals above described; and for this purpose he may have and maintain possession of all lands, buildings, tools, fixtures, and appurtenances now in use for the quarantine of neat cattle, and hereafter purchase, construct, or rent as may be necessary, and he may appoint veterinary surgeons, inspectors, officers, and employees by him deemed

necessary to maintain such quarantine, and provide for the execution of the other provisions of this act.

§ 8. That the importation of all animals described in this act into any port in the United States, except such as may be designated by the Secretary of Agriculture, with the approval of the Secretary of the Treasury, as quarantine stations, is hereby prohibited; and the Secretary of Agriculture may cause to be slaughtered such of the animals named in this act as may be, under regulations prescribed by him, adjudged to be infected with any contagious disease, or to have been exposed to infection so as to be dangerous to other animals; and that the value of animals so slaughtered as being so exposed to infection but not infected may be ascertained by the agreement of the Secretary of Agriculture and owners thereof, if practicable; otherwise by the appraisal by two persons familiar with the character and value of such property, to be appointed by the Secretary of Agriculture, whose decision, if they agree, shall be final; otherwise the Secretary of Agriculture shall decide between them, and his decision shall be final; and the amount of the value thus ascertained shall be paid to the owner thereof out of the money in the Treasury appropriated for the use of the Bureau of Animal Industry; but no payment shall be made for any animal imported in violation of the provisions of this act. If any animal subject to quarantine according to the provisions of this act are brought into any port of the United States where no quarantine station is established the Collector of such port shall require the same to be conveyed by the vessel on which they are imported or are found to the nearest quarantine station, at the expense of the owner.

§ 9. That whenever, in the opinion of the President, it shall be necessary for the protection of animals in the United States against infectious or contagious diseases, he may, by proclamation, suspend the importation of all or any class of animals for a limited time, and may change, modify, revoke, or renew such proclamation, as the public good may require; and during the time of such suspension the importation of any such animals shall be unlawful.

§ 10. That the Secretary of Agriculture shall cause care-

ful inspection to be made by a suitable officer of all imported animals described in this act, to ascertain whether such animals are infected with contagious diseases or have been exposed to infection so to be dangerous to other animals, which shall then either be placed in quarantine or dealt with according to the regulations of the Secretary of Agriculture; and all food, litter, manure, clothing, utensils, and other appliances that have been so related to such animals on board ship as to be judged liable to convey infection shall be dealt with according to the regulations of the Secretary of Agriculture; and the Secretary of Agriculture may cause inspection to be made of all animals described in this act intended for exportation, and provide for the disinfection of all vessels engaged in the transportation thereof, and of all barges or other vessels used in the conveyance of such animals intended for export to the ocean steamer or other vessels, and of all head-ropes and other appliances used in such exportation, by such orders and regulation as he may prescribe; and if, upon such inspection, any such animal shall be adjudged, under the regulations of the Secretary of Agriculture, to be infected or to have been exposed to infection so as to be dangerous to other animals, they shall not be allowed to be placed upon any vessel for exportation; the expense of all the inspection and disinfection provided for in the section to be borne by the owner of the vessels on which said animals are exported,

Approved August 30, 1890.

SOCIETY MEETINGS.

ILLINOIS VETERINARY MEDICAL ASSOCIATION.

WEDNESDAY SESSION.

The eighth annual meeting of the Illinois Veterinary Medical Association was held at the Sherman House, Chicago, November 5-6, 1890.

The meeting was called to order at two p. m. on the 5th, President Williams in the chair. The following members were in attendance during the meeting, twelve of whom responded to roll-call: Drs. A. H. Baker, S. S. Baker, J. T. Nattress, Jno. Casewell, Wm. Jinks, J. A. Judson, J. F. Pease, J. F. Reid, J. F. Ryan, J. D. Robinson, J. Stallman, J. S. Spangler, C. E. Sayre, H. Thompson, W. F. Weese, W. L. Williams, S. H. Kingery, and associate member T. D. Hinebauch.

The minutes of the previous meeting were read and approved.

The President's annual address was omitted and the election of officers was proceeded with.

Dr. Williams was nominated for President, to succeed himself, by Dr. Nattress. Dr. Williams earnestly begged to be relieved, after three years of arduous service in this capacity, and nominated Dr. Reid. Dr. Reid took the floor and nominated Dr. S. S. Baker, who in turn nominated Dr. J. F. Pease. The nominations were then closed and a ballot resulted in the election of S. S. Baker as President.

The following Vice-Presidents were then elected, the Secretary casting the ballot of the Association for each: 1st, J. D. Robinson, Canton; 2d, J. F. Reid, Decatur; 3d, J. S. Spangler, Aurora.

J. F. Pease, Quincy, Recording Secretary, and J. T. Nattress, Delavan, Treasurer, were elected to succeed themselves.

Dr. Williams was elected Corresponding Secretary, and Drs. Jno. Casewell, W. F. Weese and S. H. Kingery as the Board of Censors.

The following candidates for membership were proposed and, on motion, were elected by acclamation, viz: M. Wilson, (Royal College), Mendota; N. I. Stringer, Fairbury; Jno. H. Ullrich, (Ontario), Decatur—all proposed by Dr. Williams; J. J. Brougham, (Chicago, '89); S. Rudberg, (Chicago, '89); R. G. Walker, (Chicago, '86), all of Chicago—proposed by Dr. Baker.

Dr. Weese then presented a paper on "Scrofulous Ostitis in Foals,"* which elicited the following discussion:

Question by Dr. Reid: How do you account for the metastatic nature of this inflammation?

Ans. The micro-organism has a selective affinity for serous membranes.

Dr. Reid: How then do you account for the abscesses in the lungs and liver? I believe it due to infection through the umbilical vein, either after birth or from the mare before birth, the cord having been ruptured. Have examined hundreds of cases, and in all cases have found signs of present or previous inflammation of the umbilical cord.

Ans. No reason why other tissues may not become affected through the blood. Essayist has examined cases where no signs of inflammation of the umbilicus were visible.

Dr. Reid thought this should be called *septic arthritis*.

Dr. Williams agreed with Dr. Reid in the cause of this disease, but preferred the name of *pyro-septæmia*, given by Diekerhoff. If the umbilical vein becomes closed by a firm clot, we have an abscess formed—purely local.

The sequence of inflammatory troubles is as follows: 1st, in the liver; 2nd, in the lungs, then in serous membranes, from thrombosis of the blood vessels. He thought the changes might occur inside of two days. It is not necessary to have an abscess follow the passage of a micro-organism up the vein.

Dr. Williams uses iodoform, oxide zinc, and starch as a powder to the part, and when used early after birth has *never* had a case follow.

He thought some of his earlier cases were rachitis. Is opposed to ligation.

Dr. Reid bathed with bi-chloride solution and injected into the opening.

Dr. Thompson used local antiseptics and salicylates internally with good results.

* Published in this issue of the Review.

Dr. J. F. Reid, of Decatur, then read a paper on "Infectious Abortion of Mares,"* which brought out the following discussion:

Dr. Williams has seen much of this. In some districts it has caused as high as 80 per cent. of loss.

Dr. Hinebauch: Does the abortion of cows affect the mares, and *vice versa?*

Dr. Ullrich: Last season we lost the offspring from all but *two* of *forty* pregnant mares, and got thirty-five calves from thirty-six cows.

Dr. Hinebauch experimented with the fluid from aborted cows, and found thirteen different germs. The experiments were for the State, but the funds running short they have not been completed.

Dr. A. H. Baker divided abortions into three classes. First, from mechanical causes; second, habitual abortion; third, infectious. The latter is septic in its nature; he believed it *might* be specific, but that *any* septic or putrifactive germ may cause infectious abortion. The uterus is in close nervous connection with the rest of the body. A shock to the nerves may produce abortion by interrupting the uterine circulation. Any severe disease may cause abortion.

Dr. Reid: "We are considering infectious abortion. I draw the line between the above cases which are accidental and sporadic, and true infectious abortion. I believe each case of such to *follow* a septic degeneration of the fœtal membranes, due to a specific germ which enters through its genital passages."

Dr. Baker believed it might enter through the lungs or the alimentary canal, and a general infection follow with abortion, and putrifaction of membranes as a sequel.

Dr. Reid disagreed again. Such a general infection would be attended with grave constitutional symptoms, while it is a clinical fact that no signs of disease are evident up to the beginning of the act of abortion, yet such cases are not infrequently followed by *metritis*, or even *gangrene* of the uterus in *these* cases.

Dr. Baker thought an accidental or sporadic abortion might occur and be followed by an epizootic of abortion from the putrifaction of the membranes.

Dr. Williams: "In your cases there is a systemic disturbance antedating the abortion. In *these* cases there is a local disturbance in the fœtus, causing its death, and then abortion takes place followed by systemic septic disturbances in the mare and possibly death of the same"

Dr. Hinebauch: "I am more then ever convinced that the contagious abortions of mares and cows are distinct and separate diseases."

The discussion was here closed and an adjournment made until Thursday.

Thursday Session.

At 11 A.M. the meeting reconvened, President Baker in the chair.

The order of business was suspended, and the name of Prof. D. McIntosh of the University of Illinois, proposed by Pres. Baker.

On motion of Dr. Williams, the by-laws were suspended, and the ballot cast by the Secretary for Prof. McIntosh.

The report of the Corresponding Secretary was called, but the Secretary being absent no report was made.

The Treasurer made his report, showing a balance of $82.05 in the treasury.

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*Published in this issue of the Review.

A bill of $8.10 for stationery was presented by Dr. Williams and was allowed, being duly audited.

The committee appointed to work for the success of the Western meeting of the U. S. Veterinary Medical Association, reported through their chairman, Dr. Williams. They had made the local arrangements for the meeting in Chicago. They furnished a complete list of graduates in Illinois to the Secretary of the United States Association, and had urged members of this Association to attend and join the National Association. They report the meeting a success, one hundred and nine members being present. The West is recognized in the United States Association.

On motion of Dr. Ryan, the report was accepted and thanks paid the committee.

The amendment to the by-laws, proposed in writing at the previous meeting, duly signed, was taken from the table and read. This amendment changes the order of business so that the new officers are not elected until the old ones have enacted their programme and made their reports.

On motion of Dr. Williams, seconded by Dr. Ryan, the amendment was adopted without a dissenting vote.

On behalf of the AMERICAN VETERINARY REVIEW, Dr. Williams offered to furnish one hundred reprints of the minutes of our Association for the exclusive use of the papers for publication.

Moved by Dr. Pease, seconded by Dr. Stallman, to accept this offer of the REVIEW.

Dr. Robinson moved to amend by giving for one year, two meetings.

The amendment was received and seconded, and was then put and carried.

The motion as amended was then put and carried.

Dr. Robinson moved to reprint the constitution and by-laws; seconded by Dr. Thompson.

Moved by Dr. Williams, seconded by Dr. Pease to amend, by adding "that a committee of three be appointed to report on the expense of the same at the next meeting."

The amendment was then carried.

The motion as amended was then carried.

The chair appointed Drs. Robinson, Pease and Ryan on this committee.

The Standing Committees were then appointed as follows:

On Programme.—President Baker and Secretary Pease, *ex-officio*, Dr. Stringer, Dr. Scott and Dr. Hollingsworth.

On Arrangements.—Vice-President Robinson, *ex-officio*, chairman, and Drs. Williams and Ryan.

The sense of the meeting was then taken as to the place of the next meeting, and was found to be in favor of Bloomington.

AFTERNOON SESSION.

The Association met at 2:15, to listen to a paper on "Parturient Eclampsia in the Mare,"* by Dr. Williams, which brought forth the following discussion:

Dr. Baker wished a distinction made between the disease and the hysteria

*Published in this issue of the REVIEW.

at œstrum. He recounted a case in the mare where the temperature was 111.5° F. Gelsemium and bromide of potash had a curative action.

Dr. Williams denies the existence of hysteria in the lower animals. The disease under consideration was non-febrile.

Prof. McIntosh quoted Leacock on a case called by him hysteria, and described the symptoms.

Dr. Reid described similar symptoms in a gelding.

Dr. Baker limited the term hysteria to the febrile disturbance of œstrum with clonic spasms.

Dr. A. H. Baker then presented the following paper on "Navicular Disease and Neurotomy"* which brought out an animated discussion.

Dr. Williams at once attacked the essayist on the rheumatic theory. "Why does it not shift around as in ordinary rheumatism? Why does it attack the front feet? and is there any acid condition of the urine?" He considered it pure and simple arthritis, having as its cause a bruising from concussion of the parts.

Dr. Reid concurred in this opinion. "You recommend turning out on soft pasture for improvement; this would be the worst condition for rheumatism."

Dr. Baker referred to his paper for his opinion on the above points.

Dr. Hinebauch: "Putting into *deep* mud would be bad for a sprained tendon. It is the rest obtained by turning out that causes improvement."

He supported the rheumatic theory. Rheumatism is allied to catarrh in its ætiology. Had seen navicular diseases follow catarrhal fever, and cited a case where a post-mortem examination showed the ulcerative processes to be confined to the side of the *navicular bone* next to the *os pedis*.

Dr. Reid claimed these cases to be the exception.

Dr. Hinebauch: "Concussion renders the foot more liable to an attack of rheumatism."

Dr. Pease agreed with the preceding. German authorities hold rheumatism to be kindred to catarrh in causes. In the human subject a sprained tendon is liable to be followed by local rheumatism. Believed a rheumatic tendency to be largely to blame for the appearance and persistency of this disease.

Dr. Williams discredited the existence of rheumatism in the horse.

Dr. Hinebauch cited a post-mortem where the characteristic deposits of rheumatism were visible around a joint.

On motion, the discussion was closed.

Dr. Tait Butler, President of the Iowa Association, was unavoidably absent, and his paper on "Castration of the Horse,"* was read by Dr. Williams.

The paper was not discussed.

A vote of thanks was tendered the retiring President for the past three years of efficient service, and to the essayists.

Thanks were also voted the proprietor of the Sherman House for the use of a room to meet in.

The Association adjourned to meet in Bloomington at the call of the committee.

J. F. PEASE, *Recording Secretary.*

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*To be published in next issue.

LONG ISLAND VETERINARY SOCIETY.

The regular meeting of the Long Island Veterinary Society was held on Wednesday evening, Nov. 19, 1890, at No. 75 Adams St., Brooklyn, the President, Dr. Geo. H. Berns, in the chair.

The following members were present: Drs. Geo. H. Berns, Geo. F. Bowers, William H. Pendry, Roscoe R. Bell, Samuel Atchison and D. S. Breslin.

The minutes of the previous meeting were read and approved.

Board of Censors made no report.

The next order of business being reading of papers, Dr. Geo. H. Berns read an interesting paper on "Osteo-porosis"* which was followed by an interesting discussion by the members, after which a vote of thanks was tendered to the essayist.

The next order of business being the nomination of officers to be elected at the December meeting, the following gentlemen were placed in nomination:

President, Dr. R. R. Bell, Dr. Wm. H. Pendry; Vice-President, Dr. Samuel Atchison; Treasurer, Dr. Geo. F. Bowers; Secretary, Dr. D. S. Breslin.

Board of Censors: Dr. Geo. H. Berns, Dr. Philip Newman, Dr. H. Houseman, Dr. Thomas M. Buckley and Dr. J. F. Mustoe.

The Chair appointed Dr. Wm. H. Pendry as essayist for December meeting.

The meeting then adjourned.

D. S. BRESLIN, D.V.S,
Secretary.

KANSAS VETERINARY MEDICAL ASSOCIATION.

The Kansas Veterinary Medical Ass ociation met at the Copeland, in Topeka, Sept. 18, 1890.

Meeting called to order by President Geo. C. Pritchard.

Minutes of last meeting read and approved.

Election of officers resulted in the election of Geo. C. Pritchard, of Topeka, President; S. L. Hunter, of Ft. Leavenworth, Vice-President; L. R. Brady, of Manhattan, Secretary, and W. H. Richards, of Emporia, Treasurer.

Board of Censors elected were F. W. Cook, of Hutchinson, John Ernst, of Topeka, and S. C. Orr, of Manhattan. New members elected were Drs. Glass, Cook, Sihler and Ernst.

Two papers were read, one by D. C. Ayer, of Leavenworth, a very well prepared article on "Fistula," which was well discussed. The other being an essay on "Azoturia," by Dr. Orr, of Manhattan. This was a very well prepared essay and created quite a lively discussion.

Papers to be read at the next meeting are by Drs. Daniel Lemay, of Fort Riley, S. E. Phillips, of Wichita, and G. W. Cook, of Hutchinson.

Meeting adjourned to semi annual meeting at Wichita, second Thursday in March next.

L. R. BRADY,
Secretary.

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* Paper published in this issue of the REVIEW.